

# SEQUENCE LISTING:

## SEQ ID NO:1

Amino acid sequence of mGy12.

5 1 MSSKTASTNS IAQARRTVQQ LRLEASIERI KVSKASADLM SYCEEHARSD  
51 PLLMGIPTSE NPFKDKKTCI IL\*

## SEQ ID NO:2

cDNA sequence of mGy12, variant 1

10

1 CTAGAATTCA GCGGCCGCTG AATTCTAGGC GACGACGGCG AAGAGTGAGT  
51 GCCAAGGTTT ATATGGGAAG GACTTTGGGG TGAGCATCTT CTCTATTTCC  
101 AGCTGGCTTT TCTGATTTTC AGAAAGAAGA CTCATCAAAG ATGTCCAGCA  
151 AGACGGCAAG CACCAACAGC ATAGCCCAAG CCAGGAGAAC TGTGCAGCAG  
15 201 CTGAGATTGG AAGCCTCCAT CGAAAGAATA AAGGTCTCAA AAGCATCAGC  
251 AGACCTGATG TCATACTGTG AGGAGCATGC CCGGAGCGAC CCCCTGCTGA  
301 TGGGCATACC GACCTCAGAA AACCCGTTCA AGGATAAGAA GACCTGCATC  
351 ATCTTATAGT GGACCAGGAA GCGCCCTTGT CCTCTTAACG CAAACCACAG  
401 CAGCAACCTG AAGGGATTCC TTCAGCTTAC CTGGTAACCA CAGCTAGTAA  
451 CTAAACACC CTTCTCTCGG AATAATAGAC CCTGAAGTCT CTCTTTTTTCA  
501 AGTTGTCCTT TCTTCACCCT TTAAGTATT AATACAGAAT AACAACTTTA  
551 TTTTCTATTT GATAACTATG GTATCATATT GGGTTACTGT ATAAGGAAAA  
601 TGGCAGGGGA GTTGTGGGAA GCTTGTCTTT ACAAATATA ATTGATTAAG  
651 ATATGTCAAG ACCTACATTG TCTAAGCACC GGCAAATTAA AATGTCGAGA  
25 701 ATCACTTCAG TCAAAAACCT TTATATTCTG TTCTTAATAA TGTTTGTGCC  
751 AACCTATATC CCATGTAAGG GATCTGGGGA GGAGGCATGT GTCTACAACC  
801 ATACCTTTTT GCACATATGG CACTAACCAC CCTGAAACTT CCTGCGGTAG  
851 CTCCCTCCCT TCAGAGTTAC ATCATTATCC TGAATCTGTG TAGGTAAATT  
901 TCCGTGAAAT TTTTGTACAA AAAAAAGGTA ATGAAAGAAC GTTGCAAAGA  
30 951 TCATCTGCAT TATAATGAGT TGATGCTGTT CTCCTCCTC TCTTGGAATT  
1001 GTGCTGGCCC CTTAGTCTAC AATAAACTGT GCCAATTAAA AACCTAAGGC  
1051 TAAAACTGAA AGCCCTTTGA TGGGGTCTTA ACTCATATCA GTCATTGGG  
1101 CTTCTCTGAT CCTGAGGCTA AGAAAGGGGA AGAGACCTC AGGAGGCAGC  
1151 TTCCACTCCA GGGCTCTTGA TCTCTGCTGG ATTGGGGGTG GCCACCTCAG

1201 AAACCTCCAC CCTCATGACT GGAATGGAAG AGGGGACCGA GAGCCTCACA  
 1251 ATCTCGGAGA GGGAGGAGAA ATTCTTAAAA ACAGCTGCTC TCCTGCGCCC  
 1301 AGCTTCACAG GCAGCCCTGC CCCTTTCTCC TCACCAGCAT GGTACCTGCC  
 1351 CTTACTGCTA GAGCAGCTGC TTGTAGAGGG ACATTCCCTC CTTCCTAGTT  
 5 1401 TTAACCTGGTG GACCACAGTG GGGGGAAAAA CATTCAAGCG ATATAAAGAC  
 1451 ACTTGGGCTC TTTGCAGATG CCTATACTTC CAACACTACC ATGTCCACAA  
 1501 ACCACCCTGG GGGAGGGCCC TTCCAAAGGG AGGCTTGCTA GTTTCAGCGT  
 1551 CTAGCAGTTG GGTCTCACT TTTACTCCAA TTGTGAAAAT AGCCCACGTA  
 1601 CCCTCGCAGT GTCCAGTAGG GATCCCAGAG GCACATAACC AAGAAAGGAT  
 10 1651 TTTGACTTTG TCACAGTGAC TATTTAAAAT AATCTATTCG AAGTCCAAAC  
 1701 CAAACACAAA GCCTGTGATA TTTTAGGTTA TTAAGGTAAC TGCTAATGAA  
 1751 GGATTTTAAA AAGTGTCTCT AAAAAGGACT TAGCCCCGGG AGTTGTTTAT  
 1801 AAAATTTCCC CCACTTGTAT ACAGTGTGCA CTAAAAGAAA ATGTATTTTA  
 1851 ATATCTAATG CCTGGGCTCT GAGCGTCATG CTTCTTGGTG GTAAACATGC  
 15 1901 AGTCCTGTTC CTAAGTGACT CAGAGGCATC AGAATTTCTC CACGTTACCC  
 1951 ATCTGCTTGG CACTCGGAAC TGAGCGTGTG AAATCCATAG CGCTGCCCAC  
 2001 AACCTGTTCT CACTGCTTAG CTCCCAGCTG GATTAAAGAC ACCTGCTCAG  
 2051 GCGGGAGAGA GAGAGAGAGA GCGAGCTTTT ACCTTGAAA AGGTAAAGAT  
 2101 GGAAATGTAC ACCAAAAAAG ACAATTTTTA CATTTAATGG AACATTCTTT  
 20 2151 TTTTTTACAA GTATATTTTT CTACTGATAG TTTCAGAACA CTAATCTTAT  
 2201 ATCACTCTA ATCTTAAACA TGTTCTTTA AATATTTATA AGGCAGTTTA  
 2251 TTACAGAATA TTTTCATGCA ATCATGTGCA CATTATTGGT AGCAAACATA  
 2301 GTATATCCTT TAGTACTTTA GCATATTTTT GTTAAAATAC TTTTAATGGT  
 2351 AAGAAATGAA CTTGAGGTCC CAGGAGGTTT TGTGCTTTT TCATTGATTA  
 25 2401 GAGACAATAA ATATCTTGTA ACTTCCTAAC CAGATCTGAG CTGTGCTCAC  
 2451 AATAATAATA ATGAAATCAG ATTCTTTGAT GCTGGACTCA GGAGGGAAAT  
 2501 CATTAGCCAA CTGTTGACTT ACTTATAGCT AGATGTCTAT GTGAGAAAGT  
 2551 ATAATATATA TATATACACA TATATATGAC ATGTAAGAGT CACTTTTATT  
 2601 TATCTGTCTT TGTTCACTTA TGAAGCCGGT AACTGCAGCA GTATGTTGGT  
 30 2651 GATGTCATGA TGCACAGAAG TCCCATGTGG AGTGTTTTTC CCACACTGAC  
 2701 AACTTGGCCT CTTTCTGTG TGTTCACTCT GTTGCTGAA CTAACACTCC  
 2751 CGCGAGCACT ATACTCTTTA TACTCTGATC CCCCTAGTTC ATCTTAAATT  
 2801 TGTCTGTGGC CCTGGCAAGA TAGCGTACAC AAGATTCCAT GACTCCAGAG  
 2851 CATCTTGAAG AAACATACAT ATTTTGAAAG AGGGGAAATG TAGCAGATAG

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2901 TTCACAAGCT GCGGGTTGTA GCTAAATATT CCATTTCTTT GAAATCATGT  
 2951 TTCTAAATTC TTTACCATCA GAAAGAAAAG GAGTGTCTATA CACTTTCAAG  
 3001 GGAAGGCTTG GTCTGCGTTT TCTGTGTTTG GATTATTTTT ATACTTTGCT  
 3051 GATCTTTAAG CTATCCATGG GGGAAATTTT ATACCAACGA GTTAATAATT  
 5 3101 CTCATTCATC GTTTACACAA TGTAACATGT GTCATACTGG GGCCAGCGAG  
 3151 ATGGCTCAGT AGGTAAAGGT GCTTGATGCT AAGCCCGGCA GCCTGTGTTT  
 3201 CATCTACAGG ATGCACAACA TAAAAGAAAA GATCTGATTC CCACAGGTTT  
 3251 TCTTCTGACC TACACACACA CACTACTAAA TAACATTTAA AAATATGTGC  
 3301 CAAATTATAT TTGTTCGGGT GCCACCTTCC ACCAGCTTAC CACTACGGTA  
 10 3351 GAACTGTCAA ATTCATCTCC CTGAATTTGT CTTAAAGGGG TGTCCATGCA  
 3401 CAGGCCCAAG AGTCACCTCC AATGAAATAA ATGTAATACT GAAGTATGCC  
 3451 ATGATGTTTG TTGTTTTCTT TCATCGTAAG CCTGTAAGCA GGAAAAATAC  
 3501 GTCAAATCAG ATAGAATAGA GCATTTACCA GTGGTCGATG GCCTGGTCAG  
 3551 TCCTGTGCCG GGTGACTTAG GACCAGGCAC GTCAGCTCTC TGAGCCTCCC  
 15 3601 CTTCCCTTGT TGTCAACAAG GAATAGAAGC AGAAGAAGCT GAGAGCCTCC  
 3651 CTATTCCCAG ATGCCCTGGT GGAATGACCT GCCTCTCTGC CGTTTCTGCC  
 3701 AACGTGTTGG TGCTATAAGC TGCTTCAAAT ACCAGTTTGT CTGTAGTGTG  
 3751 TACTCACCTA ATCACTTGTT ATCCAGTGCC TGTTCTAGGT TTATGGACTT  
 3801 AACTATTTCT GTGATGTTTC ATTTTATAGCC ATGTAACTC CTAACACATA  
 20 3851 TTCTCTTATG TCTCAGTAAA GTTTCATTTG ATAAGTTGTT GAGATTCTGT  
 3901 TATTTGATAA TATTCTTCGG CTGTCCATCC AGCATCTTAA TCACTTTAAA  
 3951 ACTGTGATTG TTATTTGCAA CTCTGTCTT TGGAAAGAAT AAAAGCATTT  
 4001 TTTTTCACCT GCTAACATGC TCACAAATGT GAGAGAAGAG TCATTAAAAG  
 4051 CTTTACTTAC TGGGTCAGTG CGTCATTGAC TCCTTTCTGT GTTTTGCCCA  
 25 4101 ATAAATTAAT AAAAGACCAA AAAAAAAAAA AAAAAAAAAA AAAAAA

**SEQ ID NO:3:** cDNA sequence of mGy12, variant 2

30 1 GCAGCGGCGG CGGCGGCGAC GACGGCGAAG AGTTCATATG GGAAGGACTT  
 51 TGGGGTGAGC ATCTTCTCTA TTTCCAGCTG GCTTTTCTGA TTCACCCAC  
 101 CATTTAAAAC CTGGAGGCAC TGGGCCACAC AAAGCCTTGC TGATTTTCAG  
 151 AAAGAAGACT CATCAAAGAT GTCCAGCAAG ACGGCAAGCA CCAACAGCAT  
 201 AGCCCAAGCC AGGAGAAGT TGCAGCAGCT GAGATTGGAA GCCTCCATCG

251 AAAGAATAAA GGTCTCAAAA GCATCAGCAG ACCTGATGTC ATACTGTGAG  
 301 GAGCATGCCC GGAGCGACCC CCTGCTGATG GGCATACCGA CCTCAGAAAA  
 351 CCCGTTCAAG GATAAGAAGA CCTGCATCAT CTTATAGTGG ACCAGGAAGC  
 401 GCCCCTTGCC TCTTAACGCA AACCACAGCA GCAACCTGAA GGGATTTCCTT  
 5 451 CAGCTTACCT GGTAACCACA GCTAGTAACT AAAACACCCT TCTCTCGGAA  
 501 TAATAGACCC TGAAGTCTCT CTTTTTCAAG TTGTCCTTTC TTCACCCTTT  
 551 ACTGATTTAA TACAGAATAA CAATCTTATT TTCTATTTGA TAACTATGGT  
 601 ATCATATTGG GTTACTGTAT AAGGAAAATG GCAGGGGAGT TGTGGGAAGC  
 651 TTGTCTTTAC AAAATATAAT TGATTAAGAT ATGTCAAGAC CTACATTGTC  
 10 701 TAAGCACCGG CAAATTAAAA TGTCGAGAAT CACTTCAGTC AAAAACCTTT  
 751 ATATTCTGTT CTTAATAATG TTTGTGCCAA CCTATATCCC ATGTAAGGGA  
 801 TCTGGGGAGG AGGCATGTGT CTACAACCAT ACCTTTTTGC ACTATGGGCA  
 851 CTAACCACCC TGAAACTTCC TGCGGTAGCT CCCTCCCTTC AGAGTTACAT  
 901 CATTATCCTG ACTCTGTGTA GGTAAATTTC CGTGAAATTT TTGTACAAAA  
 15 951 AAAAGGTAAT GAAAGAACGT TGCAAAGATC ATCTGCATTA TAATGAGTTG  
 1001 ATGCTGTTCT CACTCCTCTC TTGGAATTGT GCTGGCCCCT TAGTCTACAA  
 1051 TAAACTGTGC CAATTAAAAA CCTAAGGCTA AAACCTGAAAG CCCTTTGATG  
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 20 1201 TCTGCTGGAT TGGGGGTGGC CACCTCAGAA ACTTCCACCC TCATGACTGG  
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 1301 TCTTAAAAAC AGCTGCTCTC CTGCGCCCAG CTTACAGGC AGCCCTGCCC  
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 25 1451 GGGAAAAACA TTCAAGCGAT ATAAAGACAC TTGGGCTCTT TGCAGATGCC  
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 1551 CCAAAGGGAG GCTTGCTAGT TTCAGCGTCT AGCAGTTGGG TCCTCACTTT  
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 1651 TCCCAGAGGC ACATAACCAA GAAAGGATTT TGACTTTGTC ACAGTACTA  
 30 1701 TTTAAAATAA TCTATTCGAA GTCCAAACCA AACACAAAGC CTGTGATATT  
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 1851 AGTGTGCACT AAAAGAAAAT GTATTTTAAT ATCTAATGCC TGGGCTCTGA  
 1901 GCGTCATGCT TCTTGGTGGT AAACATGCAG TCCTGTTCTT AAGTGACTCA

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1951 GAGGCATCAG AATTTCTCCA CGTTACCCAT CTGCTTGGCA CTCGGAAGCTG  
 2001 AGCGTGTGAA ATCCATAGCG CTGCCCACAA CCTGTTCTCA CTGCTTAGCT  
 2051 CCCAGCTGGA TTAAAGACAC CTGCTCAGGC GGGAGAGAGA GAGAGAGAGC  
 2101 GAGCTTTTAC CTTGGAAAAG GTAAAGATGG AAATGTACAC CAAAAAAGAC  
 5 2151 AATTTTTTACA TTTAATGGAA CATTCTTTTT TTTTACAAGT ATATTTTTCT  
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 2251 TTTCTTTTAAA TATTTATAAG GCAGTTTATT ACAGAATATT TTCATGCAAT  
 2301 CATGTGCACA TTATTGGTAG CAAACATAGT ATATCCTTTA GTACTTTAGC  
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 10 2401 GGAGGTTTTG TTGCCTTTTC ATTGATTAGA GACAATAAAT ATCTTGTAAC  
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 2551 TTATAGCTAG ATGTCTATGT GAGAAAGTAT AATATATATA TATACACATA  
 2601 TATATGACAT GTAAGAGTCA CTTTTATTTA TCTGTCTTTG TTTACTTATG  
 15 2651 AAGCCGGTAA CTGCAGCAGT ATGTTGGTGA TGTCATGATG CACAGAAGTC  
 2701 CCATGTGGAG TGTTTTTCCC AACTGACAA CTTGGCCTCC TTTCTGTGTG  
 2751 TTCAGTCTGT TGTCTGAACT AACACTCCCG CGAGCACTAT ACTCTTTATA  
 2801 CTCTGATCCC CCTAGTTCAT CTTAAATTTG TCTGTGGCCC TGGCAAGATA  
 2851 GCGTACACAA GATTCCATGA CTCCAGAGCA TCTTGAAGAA ACATACATAT  
 20 2901 TTTGAAAGAG GGGAAATGTA GCAGATAGTT CACAAGCTGC GGGTTGTAGC  
 2951 TAAATATTCC ATTTCTTTGA AATCATGTTT CTAAATTCTT TACCATCAGA  
 3001 AAGAAAAGGA GTGTCATACA CTTTCAAGGG AAGGCTTGGT CTGCGTTTTTC  
 3051 TGTGTTTGGA TTATTTTTAT ACTTTGCTGA TCTTTAAGCT ATCCATGGGG  
 3101 GAAATTTTAT ACCAACGAGT TAATAATTCT CATTATCGT TTACACAATG  
 25 3151 TAACATGTGT CATACTGGGG CCAGCGAGAT GGCTCAGTAG GTAAAGGTGC  
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 3251 AAAGAAAAGA TCTGATTCCC ACAGGTTCTC TTCTGACCTA CACACACACA  
 3301 CACTAAAATA ACATTTAAAA ATATGTGCCA AATTATATTT GTTCGGGTGC  
 3351 CACCTTCCAC CAGCTTACCA CTACGGTAGA ACTGTCAAAT TCATCTCCCT  
 30 3401 GAATTTGTCT TAAAGGGGTG TCCATGCACA GCCCAAGAG TCACCTCCAA  
 3451 TGAAATAAAT GTAATACTGA AGTATGCCAT GATGTTTGTT GTTTTCTTTC  
 3501 ATCGTAAGCC TGTAAGCAGG AAAAATACGT CAAATCAGAT AGAATAGAGC  
 3551 ATTTACCAGT GGTCGATGGC CTGGTCAGTC CTGTGCCGGG TGACTIONAGGA  
 3601 CCAGGCACGT CAGCTCTCTG AGCCTCCCCT TCCCTTCTTG TCACAAGGGA

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3651 ATAGAAGCAG AAGAAGCTGA GAGCCTCCCT ATTCCCAGAT GCCCTGGTGG  
 3701 AATGACCTGC CTCTCTGCCG TTTCTGCCAA CGTGTTGGTG CTATAAGCTG  
 3751 CTTCAAATAC CAGTTTGTCT GTAGTGTGTA CTCACCTAAT CACTTGTTAT  
 3801 CCAGTGCCTG TTCTAGGTTT ATGGACTTAA CTATTTCTGT GATGTTTCAT  
 5 3851 TTTTAGCCAT GTTAACTCCT AACACATATT CTCTTATGTC TCAGTAAAGT  
 3901 TTCATTTGAT AAGTTGTTGA GATTCTGTGA TTTGATAATA TTCTTCGGCT  
 3951 GTCCATCCAG CATCTTAATC ACTTTAAAAC TGTGATTGTT ATTTGCAACT  
 4001 CTGTTCTTTG GAAAGAATAA AAGCATTTTT TTTCACTTGC TAACATGCTC  
 4051 ACAAATGTGA GAGAAGAGTC ATTAAAAGCT TTACTTACTG GGTCAGTGCG  
 10 4101 TCATTGACTC CTTTCTGTGT TTTGCCCAAT AAATTAATAA AAGACCAAAA  
 4151 AAAAAAAAAA AAAAAAAAAA AAAAA

**SEQ ID NO:4**

amino acid sequence of human Gy12

1. MSSKTASTNN IAQARRTVQQ LRLEASIERI KVSASADLM SYCEEHARSD  
 51. PLLIGIPTSE NPFKDKKTCI IL